

1 What Is Claimed Is:

2 1 . A digital computer comprising both a computer subsystem and a CD-ROM
3 subsystem:

4 said computer subsystem including a digital computer bus via which various digital
5 computer devices included in the computer subsystem exchange commands and data, such
6 devices including a central processing unit ("CPU") , a random access memory ("RAM") , a
7 display, a read-write mass storage device, a manual input device, and a digital-audio generating
8 integrated circuit ("IC"); and

9 said CD-ROM subsystem including:

10 a CD-ROM drive;

11 an audio output amplifier that is coupled to the CD-ROM drive for receiving an
12 analog audio signal from the CD-ROM drive;

13 a plurality of CD-ROM control buttons for controlling operation of the CD-ROM
14 drive during replay of audio compact disks ("CDs"); and

15 an audio-interface IC that is coupled to the digital computer bus of said computer
16 subsystem, to the CD-ROM drive, and to the CD-ROM control buttons;

17 the audio-interface IC when the CD-ROM subsystem is energized:

18 in a first operating mode in which the computer subsystem is energized and operating,
19 relaying commands and data between the digital computer bus of the computer subsystem and
20 the CD-ROM drive; and

21 in a second operating mode in which the computer subsystem is not energized and is
22 inoperative, autonomously responding to signals received from the CD-ROM control buttons and

transmitting commands to the CD-ROM drive, the commands causing the CD-ROM drive to play an audio CD present in the CD-ROM drive.

2. The digital computer of claim 1 wherein said CD-ROM subsystem further comprises an audio switch, which operates in response to a control signal received from the audio-interface IC, for coupling the analog audio signal of the CD-ROM drive to the digital-audio generating IC included in the computer subsystem when the audio-interface IC operates in the first operating mode, and for isolating the analog audio signal of the CD-ROM drive from the digital-audio generating IC included in the computer subsystem when the audio-interface IC operates in the second operating mode.

3. The digital computer of claim 1 wherein said CD-ROM subsystem further comprises an icon display that operates in response to a control signal received from the audio-interface IC for indicating operating status of the CD-ROM drive.

4. The digital computer of claim 1 wherein said CD-ROM subsystem further comprises a track-number display that operates in response to control signals received from the audio-interface IC for indicating playing status of an audio CD present in the CD-ROM drive.

5. The digital computer of claim 1 wherein during operation of the audio-interface IC in the second operating mode, when the CD-ROM drive has been idle for a first pre-established interval of time, the audio-interface IC enters a lower power operating mode, and transmits a command to the CD-ROM drive that places the CD-ROM drive in a lower power operating mode.

6. The digital computer of claim 5 wherein during operation of the audio-interface IC in the second operating mode, when the CD-ROM drive has been idle for a second pre-

1 established interval of time, the audio-interface IC turns off electrical power to the CD-ROM
2 drive.

3 7. The digital computer of claim 6 wherein the audio-interface IC turns off electrical
4 power to the audio output amplifier upon turning off electrical power to the CD-ROM drive.

5 8. The digital computer of claim 1 wherein the audio-interface IC supplies a volume
6 control signal to the audio output amplifier.

7 9. The digital computer of claim 1 wherein the computer subsystem further
8 comprises a System Management Bus ("SMBus"), the audio-interface IC exchanging commands
9 and data with the computer subsystem via the SMBus.

10 10. The digital computer of claim 1 wherein the audio-interface IC has a third
11 operating mode in which the computer subsystem is energized and operating and the audio-
12 interface IC, as permitted by a computer program executed by the CPU included in said
13 computer subsystem, responds to signals received from the CD-ROM control buttons and
14 transmits commands to the CD-ROM drive, the commands causing the CD-ROM drive to play
15 an audio CD present in the CD-ROM drive.

16 11. The digital computer of claim 1 wherein said audio-interface IC includes a
17 multiplexer that when enabled couples the CD-ROM drive to the digital computer bus of the
18 computer subsystem, and that when disabled isolates the CD-ROM drive from the digital
19 computer bus of the computer subsystem, whereby when the multiplexer isolates the CD-ROM
20 drive from the digital computer bus of the computer subsystem the CD-ROM drive may be
21 removed from the digital computer to be replaced therein with another device.

22 12. An audio-interface IC adapted for use in a digital computer having both a
23 computer subsystem and a CD-ROM subsystem: the computer subsystem including a digital

computer bus via which various digital computer devices that may be included in the computer subsystem exchange commands and data, such devices including a CPU, a RAM, a display, a read-write mass storage device, and a manual input device; and

the CD-ROM subsystem including:

a CD-ROM drive;

an audio output amplifier that is coupled to the CD-ROM drive for receiving an analog audio signal from the CD-ROM drive; and

a plurality of CD-ROM control buttons for controlling operation of the CD-ROM drive during replay of audio compact disks ("CDs");

the audio-interface IC comprising:

a host-bus interface adapted for coupling the audio-interface IC to the digital computer bus of the computer subsystem;

a CD-ROM interface adapted for coupling the audio-interface IC to the CD-ROM drive;

a control-button logic adapted for coupling the audio-interface IC to the CD-ROM control buttons and for receiving electrical signals from the CD-ROM control buttons; the audio-interface IC when the CD-ROM subsystem is energized:

in a first operating mode in which the computer subsystem is energized and operating, relaying commands and data between the digital computer bus of the computer subsystem and the CD-ROM drive; and

in a second operating mode in which the computer subsystem is not energized and is inoperative, autonomously responding to signals received from the CD-ROM control buttons and transmitting commands to the CD-ROM drive, the commands causing the CD-ROM drive to play an audio CD present in the CD-ROM drive.

1 13. The audio-interface IC of claim 12 wherein the CD-ROM subsystem further
2 includes an audio switch, the audio-interface IC being adapted for supplying a control signal to
3 the audio switch for coupling the analog audio signal of the CD-ROM drive to a digital-audio
4 generating IC included in the computer subsystem when the audio-interface IC operates in the
5 first operating mode, and for isolating the analog audio signal of the CD-ROM drive from the
6 digital-audio generating IC included in the computer subsystem when the audio-interface IC
7 operates in the second operating mode.

8 14. The audio-interface IC of claim 12 wherein the CD-ROM subsystem further
9 includes an icon display, the audio-interface IC being adapted for supplying a control signal to
10 the icon display which effects an indication of an operating status of the CD-ROM drive.

11 15. The audio-interface IC of claim 12 wherein the CD-ROM subsystem further
12 includes a track-number display, the audio-interface IC being adapted for supplying control
13 signals to the track-number display for indicating playing status of an audio CD present in the
14 CD-ROM drive.

15 16. The audio-interface IC of claim 12 wherein during operation of the audio-
16 interface IC in the second operating mode, when the CD-ROM drive has been idle for a first pre-
17 established interval of time, the audio-interface IC enters a lower power operating mode, and
18 transmits a command to the CD-ROM drive that places the CD-ROM drive in a lower power
19 operating mode.

20 17. The audio-interface IC of claim 16 wherein during operation of the audio-
21 interface IC in the second operating mode, when the CD-ROM drive has been idle for a second
22 pre-established interval of time, the audio-interface IC turns off electrical power to the CD-ROM
23 drive.

1 18. The audio-interface IC of claim 17 wherein the audio-interface IC turns off
2 electrical power to the audio output amplifier upon turning off electrical power to the CD-ROM
3 drive.

4 19. The audio-interface IC of claim 12 wherein the audio-interface IC supplies a
5 volume control signal to the audio output amplifier.

6 20. The audio-interface IC of claim 12 wherein the computer subsystem further
7 includes a System Management Bus ("SMBus"), the audio-interface IC being adapted for
8 exchanging commands and data with the computer subsystem via the SMBus.

9 21. The audio-interface IC of claim 12 wherein the audio-interface IC has a third
10 operating mode in which the computer subsystem is energized and operating and the audio-
11 interface IC, as permitted by a computer program executed by the CPU included in the computer
12 subsystem, responds to signals received from the CD-ROM control buttons and transmits
13 commands to the CD-ROM drive, the commands causing the CD-ROM drive to play an audio
14 CD present in the CD-ROM drive.

15 22. The audio-interface IC of claim 12 wherein the audio-interface IC includes a
16 multiplexer that when enabled couples the CD-ROM drive to the digital computer bus of the
17 computer subsystem, and that when disabled isolates the CD-ROM drive from the digital
18 computer bus of the computer subsystem, whereby when the multiplexer isolates the CD-ROM
19 drive from the digital computer bus of the computer subsystem the CD-ROM drive may be
20 removed from the digital computer to be replaced therein with another device.